T E R R A

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NATURAL HISTORY MUSEUM OF
LOS ANGELES COUNTY

CALENDAR OF EVENTS INSIDE!

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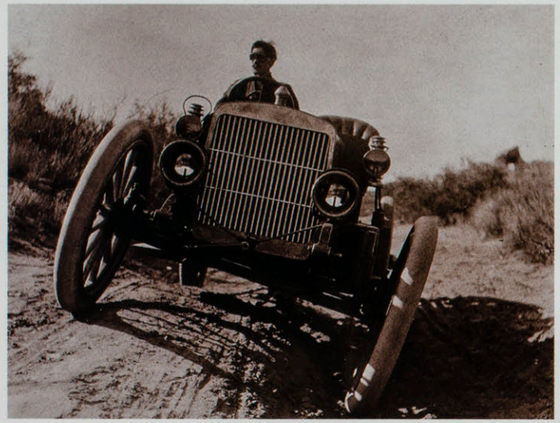
AUTOMOBILE STATE OF THE ART: 1905–1910

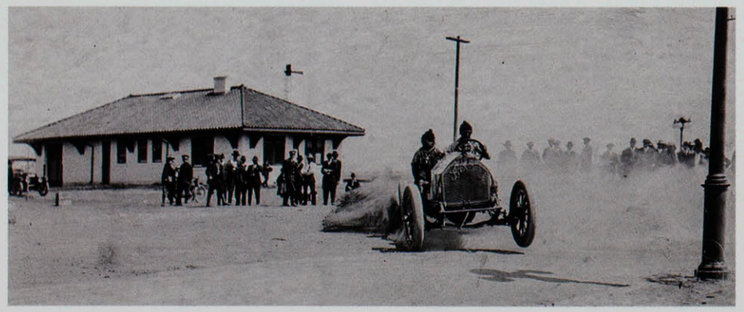
As the first decade of the twentieth century drew to a close, motorcars shed their buggylike "horseless carriage" appearance and became a distinct form of transportation. Steam and electricity vied with gasoline as the preferred power source, and manufacturers began building relatively inexpensive cars in quantity for the masses. The Petersen Automotive Museum's new exhibition of more than 20 vehicles built between 1905 and 1910 celebrates this extremely dynamic chapter in the history of the automobile.

Before the adoption of mass production methods like those that Oldsmobile and Ford began to use around the turn of the century, skilled craftsmen had built cars by hand, one at a time, to a variety of designs. In some of these autos, the engine was under the driver's seat; in others, it was in the back over the rear axle. By 1905, the layout that French engineer René Panhard had pioneered in the late 1800s had been adopted by most manufacturers; in his "Systeme Panhard," the engine was placed under a hood at the front of the automobile and attached to a clutch, a gearbox, and a final drive to the back wheels. This rear-wheel-drive plan is still popular today.

Although gasoline engines were gaining acceptance by 1905, they were not yet the universal choice for automakers: they were powerful, easily serviced, and quick to refuel, but they also emitted loud noise and unpleasant odors and usually required a crank and a great deal of physical effort to start. In contrast, electric cars were quiet and easily started—features that were especially valued by women drivers; but the range of these cars was limited, and they were slow to take a charge. Steam-powered vehicles had the advantage of being quieter than gasoline cars and the drawback of a complicated starting process that could consume from 20 to 30 minutes. The gasoline-powered engine soon came to dominate the automobile market, but in 1910, buyers could still chose between gas, electric, and steam automobiles, based on their needs and priorities.

The bodies of most early automobiles were open because their small engines could not propel a heavier, enclosed vehicle. In these open-air models, a folding fabric or leather canopy provided modest





TOP LEFT
An 18-inch (45-centimeter) ground clearance and special suspension helped keep the 1910 Hunt level on uneven roads. Only one Hunt was ever built, and it is on display in the Petersen Museum exhibition, State of the Art: 1905-1910.

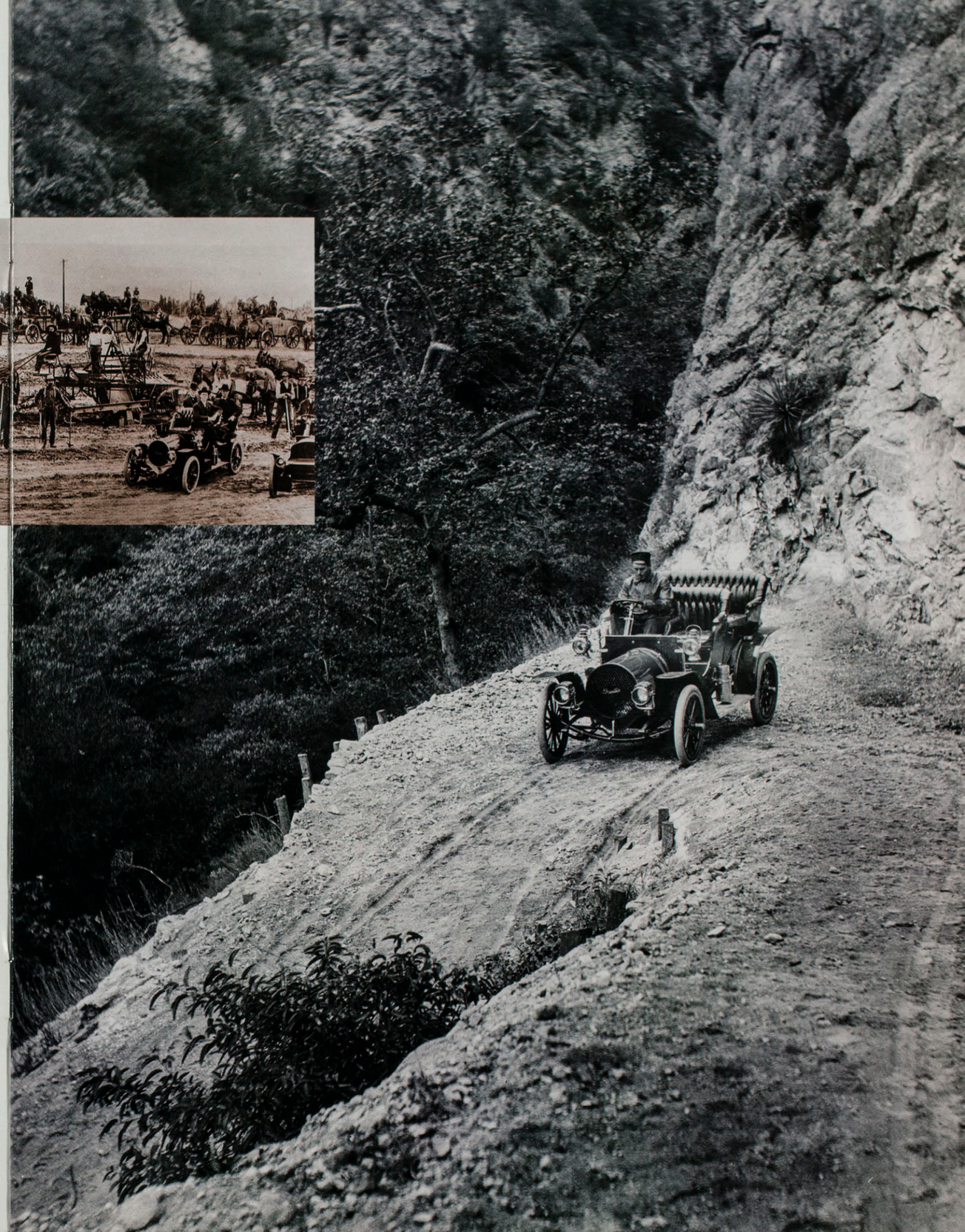
BOTTOM
Both a driver and a riding mechanic were needed to keep early race cars running properly. Crowds braved heat and dust to gather wherever a race was held.

OPPOSITE
In May 1907, a Franklin driven in turns by Los Angeles dealer Ralph C. Hamlin and Lester L. Whitman became the first automobile to climb Mt. Wilson. Franklins were popular in extreme climates because their air-cooled engines could neither freeze nor boil over. Photograph by Whitman; John S. Hammond Collection.

OPPOSITE INSET
Early in the century, horse-drawn equipment was called into service to build better streets for automobiles. A barrel-nose Franklin like the one in the foreground of this photograph is on display in the Petersen Museum's exhibition.

COVER
Large and powerful luxury cars such as this Thomas, circa 1908, could be stripped of fenders, headlamps, and weather protection to make them as light as possible for competition. Auto racing was considered a gentleman's sport, and wealthy motorists dressed accordingly.

Except as noted, photographs are from the collections of the Petersen Automotive Museum, Natural History Museum of Los Angeles County.



Automobiles, horse-drawn carriages, and streetcars travel side by side on Los Angeles's Broadway Street, circa 1908. Photograph Seaver Center for Western History Research, Natural History Museum of Los Angeles County.

protection from rain or snow. Buyers seeking more shelter from inclement weather created a market for closed bodies, known as coupes. And better engineering soon led to the creation of more powerful engines, which were then built into limousines that could carry several passengers in snug comfort. To give back-seat riders air and sunshine, automakers produced landaulets—closed-body cars with rear roofs that could be folded down.

Although many makers of limited-production luxury cars clung to the tradition of producing only a chassis, to be fitted with a body by an outside coachbuilder, there was an increasing tendency among manufacturers to build both chassis and body in house, thus gaining greater control over a car's appearance. Horizontal lines were emphasized, and passengers came to be enveloped within the car rather than perched on top of it. Ultimately, automobiles lost the fragmented, disorderly look that had so clearly revealed their origins as assemblages of disparate parts.

The Petersen Automotive Museum's exhibition on this early era of technologic and aesthetic development features a 1906 Black Stanhope, a 1909 Rolls-Royce 40/50 "Silver Ghost" Roadster, and a 1910 Buick Open Stake Truck as well as a brougham, landaulets, touring cars, racers, and runabouts. Extremes in styles and features are represented—from the 1906 Waltham Orient Buckboard, which was essentially a bench seat on a gas-powered wooden platform, to the huge 1908 Pierce Great Arrow, a sophisticated and luxuriously appointed vehicle for its time. Together, the collection demonstrates the vitality and ingenuity at work in the birth of an industry.

Leslie Kendall
Collections Manager, Petersen Automotive Museum

State of the Art: 1905-1910, continues on the second floor of the Petersen Automotive Museum through 1996.

A POLYCHAETE THREATENS CALIFORNIA'S ABALONE CULTURE INDUSTRY

The commercial culture of red abalone (*Haliotis rufescens*) in California—a very lucrative enterprise—developed when the harvest of wild specimens of the mollusc began rapidly dwindling in the 1970s. Abalone aquaculture facilities are usually located onshore, where the animals are bred and reared in tanks provided with fresh seawater pumped in from the ocean. Once they reach a length of about 3 inches (8 centimeters), the shellfish are harvested and shipped live to U.S. and foreign markets to meet the culinary demands for this delicacy.

An abalone typically produces a very shallow, gently sloping shell that looks somewhat like a human ear. But in 1993, several California growers began to notice the presence of animals with deformed shells and a marked decrease in or complete cessation of growth. The shells of affected abalone had very steep margins, giving them a peculiar, cup-like appearance. When the growers discovered a tiny, free-living worm occupying burrows in the shells of the abnormal molluscs, they surmised that the invaders were somehow causing the problems. I was asked to identify the worms and provide any information on their natural history that might be used to control what had by then developed into massive infestations that posed a potential threat to the entire industry.

The worms belong to a group known

The effects of the fan worm on abalone shell growth can be extreme: the shell at top here is uninfected, but the other two show characteristic deformation in the form of wider growth rings along the bottom margins. Photograph by Carrie Culver

BOTTOM

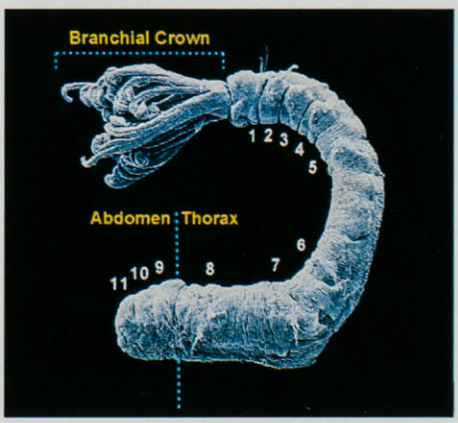
Left: Abalone fan worms with their branchial crowns extended into the water for feeding. Photograph by Kirk Fitzhugh. Right: An adult abalone fan worm. Scanning electron microscope photograph by Kirk Fitzhugh.

as polychaetes, which are segmented organisms closely related to earthworms and leeches. Though rarely seen by most people, polychaetes are usually the most numerous of the marine bottom-dwellers that are visible with the naked eye. They are a vital link in the ocean's food web and are excellent indicators of the health of marine habitats. The Natural History Museum maintains one of the world's largest polychaete collections.

The polychaetes found in cultured red abalone shells represent a new genus and species in the family Sabellidae, a group I have been studying for the past 10 years. Sabellids are commonly known as "fan worms," in reference to the filamentous appendages in their head regions, which form what is called the "branchial crown." The crown functions as a respiratory organ as well as a filter to strain minute food particles from the water; the remainder of the sabellid body is composed of segments—as few as ten or as many as several hundred, depending on the species.

Nearly all fan worms secrete mucus onto which they attach sand or mud to form a tube. Each worm's tube is usually buried in sea floor sediments, with only the opening exposed at the surface; to feed, the worm must extend its branchial crown up into the water.

At ⅛ inch (3-millimeters) long and with 11 segments, the new abalone fan worm is one of the smaller animals in its family. The species' most striking feature is that, rather than living independently in a tube in ocean sediments, each adult worm occupies a ¼-inch (5-millimeter) long burrow in the shell of a host abalone.



Once the worm's identity was established, several other questions needed to be addressed, and I began a collaboration with Dr. Armand Kuris (University of California, Santa Barbara) and one of his graduate students, Carrie Culver. Together, we were able to determine that this fan worm is not native to the eastern Pacific Ocean. It was apparently introduced here several years ago when a South African abalone species (*Haliotis midae*) was imported for a hybridization program at one of the local culture facilities.

As a result of my prior research on sabellids, I could accurately predict reproduction and development in the new species. The abalone fan worm is a simultaneous hermaphrodite, which means that a single individual can produce eggs and sperm at the same time. Fertilized eggs remain in the adult's burrow and eventually develop into larvae, which do not feed but instead continue to obtain nutrients from their egg yolk.

In most sabellids that brood, the young leave the maternal tube as preadults, with their branchial crowns formed so that feeding and tube building can commence. But the abalone fan worm leaves its parent's burrow while still a larva; at this point in its life cycle, it cannot feed because its branchial crown has not yet formed, and it looks nothing like the adult.

After exiting the burrow, an abalone fan worm larva glides over the surface of the host shell to the underside of the shell lip, where it settles in direct contact with the mollusc tissue that functions to secrete shell. Within hours, the abalone begins laying down shell over the larva, effectively encasing it in its own new burrow. The worm then develops adult features, including the branchial crown. Kuris and Culver have found that, after covering an intruding fan worm larva with shell, the host red abalone modifies its pattern of shell growth, and the result is the abnormalities witnessed by California growers.

The introduced fan worm species has no natural predators in California's aquaculture systems, and—with numerous abalone in close proximity—infestations can be very high. A 3-inch (8-centimeter) shell might be home to several hundred living adult worms producing offspring! This imposes tremendous stress on the abalone. (Interestingly, South African abalone infected with the same fan worms do not show any signs of abnormality.)

At present, we know of no effective remedy for an abalone fan worm infestation in a culture facility, other than for the grower to be very careful not to infect new stock. The potential long-term impact that this worm might have on native molluscs if it becomes established in California waters is just one of the issues to be addressed in our ongoing collaborative research.

DR. KIRK FITZHUGH
Associate Curator of Polychaetes

INTO AMAZONIA

The Yurua River of Amazonia Peru; the 50-foot (15-meter) dugout canoe used in the museum's expedition is visible at the near bank. Photograph by Ken Campbell.

The Natural History Museum's paleontological fieldwork in the Amazon Basin has yielded some extremely interesting finds, including the first and only known fossil monkeys and bats from tropical, forested South America and a specimen of impressive size—the 5-foot-long (1.5-meter) skull of the giant extinct crocodilian *Purussaurus brasiliensis*. Yet work in this wet region of South America is far from routine, for several reasons. Fossils are usually found in rock outcrops, and in Amazonia dense vegetation hides the underlying rock strata except where rivers have recently scoured away portions of their banks or where cuts have been made for new roads, which are very rare. The lack of transportation networks and of sources of supplies for paleontological fieldwork, as well as concern for the health of people working in such remote areas, make the logistics of mounting expeditions to this part of the world daunting.

Dr. Kenneth E. Campbell, the museum's Curator of Fossil Birds, has made many trips to the Amazon Basin of Brazil, Peru, and Bolivia over the past 20 years. He has often been accompanied by his colleague, Dr. C. David Frailey, a mammalogist and vertebrate paleontologist associated with the University of Kansas. In July 1995, they traveled to an Amazon tributary, the Yurua River in eastern Peru; they were accompanied by Professora Lidia Romero Pittman, a geologist who is employed by the Peruvian Department of Minerals and Geology in Lima, and by John G. Wigmore, a lawyer and member of the Board of Trustees of our museum who underwrote the expenses for a portion of the trip and shared the daily rigors of the expedition.

In previous work, Campbell and Frailey had found that the geological deposits in various places in the Amazon Basin follow the same sequence and include a fossiliferous layer that dates to the late Miocene, some 8 to 10 million years ago. On this trip, they were sampling a site new to them that had not been reported on since the 1950s, when it was explored by the renowned American paleontologist George Gaylord Simpson and his Brazilian colleague and friend Carlos de Paula Couto.

In an account of the 1995 expedition, Wigmore describes the study's objectives:

> With this expedition, Ken and Dave hoped to connect the area explored on their own previous trips with the field sites of [Simpson and Paula Couto]. In fact, they had something rather definite in mind. In their 1950s' work, Simpson and Paula Couto had found fragments of North American immigrant animals thought not to have been in South America before the Pleistocene, about 2 million years ago. However, the geology encountered by the earlier workers appeared to Ken and Dave to match the sediments that they had seen all over the southwestern quarter of the Amazon Basin and had dated to the late Miocene. If the stratum that Simpson and Paula Couto had explored was actually the same geological unit from which Ken and Dave had pulled a late Miocene fauna, then the migration of animals from North America had occurred 6 to 8 million years earlier than presently assumed, and every current hypothesis relating to faunal migration between North and South America would be overturned.

The 1995 expedition began in the small, isolated town of Breu, Peru. Here, the services and 50-foot (15-meter) canoe of a boatman who resided with the native Yaminagua people were engaged, and the party set out on the Yurua River, examining and sampling from the riverbank by day and camping out on the sandy beaches alongside the river at night.

Ten days into the expedition, Campbell and Frailey's party crossed from Peru into Brazil and identified a geologic site sampled by Simpson and Paula Couto. They were excited to discover that the sedimentary beds there were Miocene and the same formation that they had observed on other expeditions. Their main objective accomplished, they reversed course and returned to the most promising fossil collecting site that they had encountered on the Yurua. Here, they found hundreds of fossil specimens of many different species of marsupials, rodents, and ungulates, all probably new to science.

The geological information gathered on this and other trips to the Amazon Basin is as important as the fossil specimens in understanding the history of the region. The basin is significant, not only for its own sake but also—because of its huge size—for its potential effects on the rest of the world. For example, the ongoing destruction of the tropical forests in this region is massive, and the effect of the loss of these great forests on the world's climate is still not understood. Identifying a period in the past when the Amazon forest did not exist may help us to understand, and prepare for, a future without it. Campbell and Frailey's efforts to date the geological column of Amazonia, which were greatly advanced during the 1995 expedition, will continue in the field season of 1996.

John Wigmore's vivid account of the 1995 expedition to the Amazon Basin is reproduced on the Natural History Museum's home page on the World Wide Web (http://www.lam.mus.ca.us/lacmnh/departments/research/paleontology/vertpaleo/expeditions).

MUSEUM ON THE MOVE

MUSEUM AND UCLA JOIN FORCES

The Natural History Museum has entered into a partnership with the Institute of Archaeology at the University of California, Los Angeles. The agreement, signed in March 1996, specifies areas of cooperation in research and education between the two institutions, in which they will develop joint public programming and increase formal contacts among researchers and students.

The agreement was developed by Dr. Karen Wise, museum Assistant Curator of Anthropology, and Dr. Richard Leventhal, Director of the Institute of Archaeology, with the goal of strengthening the offerings at both institutions and avoiding duplication in programming. The two partners are planning joint public lectures, and two UCLA students will accompany Dr. Wise on her summer 1996 expedition to Peru to conduct archaeological field research.

PHOTOGRAPH BY DICK MEIER

Present at the signing of the partnership agreement between the museum and the UCLA Institute of Archaeology were *(clockwise from lower left)* Scott Waugh, Dean of Social Sciences for UCLA's College of Letters and Sciences; Joan Grasty, the museum's Chief of Education; Richard Leventhal, Director of the UCLA Institute of Archaeology; Margaret Hardin, Section Head and Curator of Anthropology for the museum; and Tod Stuessy, the museum's Deputy Director for Research and Collections.

OUTSTANDING VOLUNTEERS

The Natural History Museum's 1995 Volunteer Recognition Night, held in early spring, honored the docents, Service Council members, and volunteers whose hardwork and efforts are so important to the operation of the institution. In expressing thanks, Dr. James L. Powell, Museum President and Director, noted that in the past year volunteers donated 105,700 hours of service, which is equivalent to the addition of 53 full-time staff members.

Outstanding Achievement Awards for 1995 were given to Ellen Bernick, Mary Gilles, and Bill Waits (Page Museum); Linda Henry (Burbank); Marion Graff, Emily Wells, Margo Zenk and the entire Docent Roundtable for their work on the National Docent Symposium (Education); Betty Defibaugh (Research and Collections: Entomology); Helen Thaler (El Dorado Nature Center); and James Allen and Lenz Meylan (Petersen Automotive Museum).

GETTY MULTICULTURAL INTERNSHIPS

The Education Division has recently received a grant of $10,200 from the Getty Grant Program. The Getty Grant Program has since 1993 offered funding to area museums and visual arts organizations for multicultural undergraduate internships during the summer; the goals of the program are to increase ethnic and cultural diversity in the professions related to museums and the visual arts and to provide programmatic support for local organizations.

The Natural History Museum has been involved in the program since its inception. Each year interns have brought wonderful ideas and boundless energy to the museum and have taken away exciting new skills in informal education and program administration. This year the grant funds will provide the stipends for three interns who will work for 10 weeks with the Museum Research Apprenticeship Program, the Insect Zoo, and the Page Museum Day of Sunshine.

NSF GRANT FOR SCIENCE EDUCATION

The Young Scholars Program of the National Science Foundation has made a grant of $117,600 to the Natural History Museum in support of the 1996/1997 Museum Research Apprenticeship Program. Each year, MRAP provides twenty high school students from around Los Angeles with the opportunity to learn about museum-related scientific disciplines by taking a Saturday course in the natural history of southern California and conducting a research project under the mentorship and supervision of a museum curator. Many MRAP graduates have gone on to become distinguished college students and young scientists.

The successful grant was prepared by Dr. Karen Wise, Assistant Curator of Anthropology, and Susan K. Lafferty, Museum Education Specialist. Curators participating in MRAP in the next two years include herpetologist Dr. Robert L. Bezy; entomologist Dr. Brian V. Brown; marine invertebrate specialists Dr. Kirk Fitzhugh (polychaetes), Dr. Gordon Hendler (echinoderms), and Dr. Joel Martin (crustaceans); botanist Dr. Don Reynolds; and paleontologists Dr. J.D. Stewart and Dr. David P. Whistler.

ANTHROPOLOGY COLLECTION CARE MILESTONE ACHIEVED

In January 1996, the Anthropology Section completed the inventory, cataloging, and rehousing of several important collections from San Nicolas, one of the Santa Barbara Channel islands. The project was funded through an $18,000 contract from the United States Navy Environmental Division of the Naval Weapons Station at Point Mugu, California; the contract was awarded to Dr. Karen Wise, Assistant Curator, and Christopher Coleman, Collections Manager.

The specimens from San Nicolas Island consist of stone, shell, bone, and seagrass textile artifacts, some of which are the finest ever found in southern California. Although certain items were donated by

(continued on page 14)

THE STALK-EYED FLIES

REMARKABLY, SPECIES OF FLIES from at least eight different families, living in separate tropical areas of the world, have independently evolved stalked eyes. The most spectacular stalk-eyed flies are in the genus *Achias* (family Platystomatidae) of Australia and New Guinea. Particularly impressive is the rare *Achias rothschildi*: males of this species, which have bodies about ¾ inch (15 millimeters) long, can have eyes up to 2¼ inches (55 millimeters) apart, making them the world's widest-headed flies!

The stalks of all flies with extended eyes are actually prolongations of the head capsule and thus are not movable like those of crabs, lobsters, and many other crustaceans. The fact that a fly's eye stalk length is normally directly related to its overall body size implies that the condition is a "luxury" that is not fully utilized if the larval stage is undernourished.

Stalked eyes are obviously important in binocular vision. Although their eyes are smaller than those of many other flies, the good eyesight of most stalk-eyes is apparent from their behavior. They quickly become aware of a human onlooker, squarely facing and constantly following the movements of the potential threat by turning their heads and bodies, aided by their flexible necks.

By experiment, entomologists have concluded that being stalk-eyed has several benefits. It extends the fly's field of view, improving its all-round vision: a stalk-eyed fly has virtually no rear blind

***Laglaizia biroi* male, a representative of a small endemic New Guinean picture-winged genus of stalk-eyed flies. Photograph by Michael Parsons.**

***Achias rothschildi* male from Papua New Guinea; this stalk-eye is the world's widest-headed fly. Photograph by Michael Parsons.**

spot to give a predator the advantage of an unnoticed approach. Widely separated eyes apparently also improve a fly's ability to accurately estimate distances and sizes and to identify objects at long range.

Widespread eyes permit stalk-eyed flies to better recognize each other, and they are a releaser for certain behavioral patterns in members of the same species. In species where only the males bear eyes on stalks, the condition definitely functions during sexual display and courtship. Individual males of some species are known to react threateningly to their own reflections in mirrors. And in territorial bouts between males of the same species, the opponent with the smaller eye span is more likely to automatically decide its distinct disadvantage and to withdraw even before attempting to fight.

To the females of these species, long eyestalks in a male have been found to have the opposite effect; females seem drawn to males with this feature. Because of the direct ratio of eyestalk length to body length, males with the longest stalks are likely to be genetically strong and fit and thus most suitable as mating partners. In experiments with stalk-eyed flies, researchers have found that those with small heads lose contests most frequently (about 90 percent of the time) and so are probably less likely to mate and pass on the characters encoded in their genes.

Some biologists theorize that the expansion of the head with stalked eyes was first favored by Darwinian-style natural selection for the improvements in vision that resulted. Then, after a certain number of generations of such development, progressively wider heads continued to be evolved, enabling males to gain additional "psychological" advantages. Long eyestalks in a male finally came to signal the presence of a strong individual—a distinct threat to rivals and an attractive potential mate to females.

Stalked eyes may give a fly that possesses them some combination of the range of the benefits suggested here, as well as other advantages that are more subtle and have yet to be ascertained. The stalk-eyed flies provide excellent opportunities for future studies of behavioral ecology and sexual selection.

MICHAEL PARSONS
Research Associate, Entomology Section

EXHIBITIONS AND SPECIAL EVENTS

■ **The Flintstones' Din-o-scovery,** through 1996, Dinosaur Hall, Museum of Natural History, Exposition Park. Colorful interactive displays, featuring Fred Flintstone® and his friends, enhance the museum's impressive array of skeletons of dinosaurs and other extinct animals.

■ **California Wetlands,** through September 1, Museum of Natural History, Exposition Park. More than thirty works by artists from the California Art Club dramatize the beauty of our state's wetlands, with the goal of stimulating public interest in perserving these environmentally important places.

■ **In the Dark,** Through September 22, Dart Gallery, Museum of Natural History, Exposition Park. Interactive elements and life-size dioramas are used to introduce visitors to the world's darkest environments, including ecosystems below the ground, inside caverns, and deep in the sea, and to explore the ways in which animals, plants, and people have adapted to habitats that have little or no light.

■ **State of the Art, 1905–1910,** through 1996, Second Floor Galleries, Petersen Automotive Museum. This exhibition of more than twenty automobiles, including a 1905 Oldsmobile Model "B" Curved Dash Runabout and a 1906 Pungs Finch Limited, offers a glimpse into the period of transition from "horseless carriage" to modern motorcar.

■ **Harley Legends,** through 1996, Third Floor Galleries, Petersen Automotive Museum. A rare collection of vintage, new, and custom Harleys on loan from collectors around the world chronicles the 90-year history of the Harley-Davidson Motor Company, the sole remaining U.S. motorcycle manufacturer.

PROGRAMS FOR MEMBERS AND VISITORS

LECTURES & SPECIAL EVENTS

■ CELEBRATING THE CAR

Kids Commemorate a Century of American Motoring in Art

Saturday, July 27, 10 a.m. to 4 p.m., Third-level parking area, Petersen Automotive Museum

As part of a series of summer programs marking the 100th anniversary of the car in America, this day of free art events for children is sponsored by the Petersen Automotive Museum, Pep Boys, and Memory Lane Collector Car Dismantler. Paint and make a collage on a real car, create a futuristic cityscape mural, have your face painted, make car badges, design an "auto mobile," and enjoy other auto-inspired activities. Artwork and decorated cars from the series will be exhibited at the Petersen Museum from September 15 to November 15, 1996. For a schedule of events, please call 213/964-6347. Free to museum members, and to others with museum admission.

Lecture and booksigning

■ DINOSAURS OF THE FLAMING CLIFFS

Sunday, September 15, 2 p.m., Jean Delacour Auditorium, Museum of Natural History, Exposition Park

Join **Dr. Michael Novacek**, vice president and dean of science at the American Museum of Natural History, as he recounts one of the greatest dinosaur expeditions of the twentieth century. The remote sands of the Gobi Desert, closed to the West in the 1920s and since opened only to Dr. Novacek's team, constitute one of the richest fossil sites in the world. In his slide-illustrated lecture, Novacek re-creates the day-to-day drama of field exploration and describes the remarkable discoveries that he and his international team of scientists have unearthed. His new book, *Dinosaurs of the Flaming Cliffs* (Doubleday, September 1996), will be available for purchase at the lecture. $7 members, $9 nonmembers, $5 students with I.D.

Symposium

■ ANCIENT EGYPT

The Earliest Mysteries

Saturday, July 20, 9 a.m. to 4:30 p.m., Jean Delacour Auditorium, Museum of Natural History, Exposition Park

Ancient Egypt was not always a place of pyramids and kings. Join us for an exploration of Egypt's predynastic era—the culture that preceded the Old Kingdom and can be traced to 3000 B.C. and before. These earliest of Egyptian civilizations, whose development was influenced by the Nile River, set patterns of culture that culminated in the Ancient Egyptian state known for its grandeur and mystery.

Dr. Fekri Hassan, Professor of Egyptology at University College, London, and Petrie Chair of Egyptology, has uncovered some of the earliest Egyptian cemeteries ever discovered and has based his extensive descriptions of predynastic communities on explorations of these grave sites and examination of their accompanying goods.

Dr. Antonio Loprieno, Professor of Egyptology at UCLA and Chairman of the Department of Near Eastern Languages and Cultures, will discuss the emergence of religion in the predynastic period and its subsequent development, touching on the significance of early records, including the *Pyramid Texts.*

Dr. Elizabeth Wayland Barber, Professor of Archaeology at Occidental College and author of *Women's Work: The First 20,000 Years* (W.W. Norton, 1994), will discuss the lives and roles of women in pre-dynastic Egypt.

Cosponsored by the American Research Center in Egypt, Los Angeles Chapter. $40 members, $50 nonmembers, $25 students with I.D.

■ HART OF THE WEST

A September Celebration

Saturday and Sunday, September 28 and 29, Hart Museum and Park

The William S. Hart Park and Museum present a weekend of Western fun. Activities include a Native American powwow and craft fair, a wild west show, re-enactments of scenes from the Civil War era, and opportunities to discover what life was like in the Old West. For more information, please call 805/259-0855.

■ ONE RIVER, TWO GENERATIONS

Scientific Adventure in the Amazon Rain Forest

Wednesday, September 18, 7 p.m., Connor Pavilion, Petersen Automotive Museum

In 1941 Richard Evans Schultes took a leave of absence from Harvard and disappeared into the Amazon Basin to solve the mystery of the sacred hallucinogens of the Aztec. Twelve years later he returned from South America having explored its most remote regions, mapping uncharted rivers and living among native peoples while collecting 25,000 botanical specimens.

Two decades later, Schultes sent his students Tim Plowman and Wade Davis to follow in his footsteps. The two made their own discoveries, including identifying the origin of the coca plant, the source of cocaine.

Join ethnobotanist **Dr. Wade Davis** for a vivid talk on his legendary adventures and discoveries in the Amazonian rain forests. Dr. Davis, whose book *The Serpent and the Rainbow* (Simon & Schuster, 1986) was made into a major motion picture, will sign copies of his newest work, *One River,* following the lecture. $7 members, $9 nonmembers, $5 students with I.D.

ADULT CLASSES

■ TROWELS, GUFFAHS, AND HIEROGLYPHS

The Archaeology of Egypt and the Ancient Near East

Thursdays, October 3 through November 21, 7 to 9 p.m., Museum of Natural History, Exposition Park

Join us for an eight-session exploration of the fascinating history and culture of the world's oldest civilizations, those of Egypt and Mesopotamia. The art and literature of Egypt evoke images of grand temples, devastating plagues, the fertile Nile Valley, vast deserts, mysterious rites, and an empire that reached into Syria. To Mesopotamia,

Western civilization owes the origins of writing, literature, astronomy, medicine, religion, and more. In addition Hittites, Persians, Canaanites, Philistines, and Hebrews made their contributions to this ancient world.

Archaeologist **Jay Bisno,** formerly of the Natural History Museum, the Los Angeles County Museum of Art, and the Israel Museum in Jerusalem and now teaching at the University of Judaism, will guide us on this exciting journey through the earliest civilizations. $80 members, $90 nonmembers.

■ BIOLOGICAL ILLUSTRATION

Tuesday evenings, September 3 through November 26, 6 to 9 p.m., Museum of Natural History, Exposition Park

Learn to create beautifully detailed and scientifically accurate images of a variety of animals and plants. Working with pencil, pen and ink, and watercolor, you will practice stippling, line drawing, and shading to create illustrations of natural specimens. Instructor **Frances Runyan** has taught illustration at the museum for over 13 years; her paintings and drawings have appeared in books and scientific journals and are represented in the collections of the Huntington Library, Carnegie Institute, and our own museum. All experience levels welcome. $90 members, $100 nonmembers.

ADULT FIELD TRIPS

■ OWLS, BATS, AND BUGS

Saturday, July 13, 6 to 10 p.m.

Nightfall brings out many animals rarely seen by daytime observers: owls, bats, insects, and other nocturnal creatures emerge from their hideouts to hunt for a meal or a mate. The Santa Monica Mountains make a perfect setting for an evening of observation and study of southern California's nighttime wildlife.

With museum ornithologist **Kimball Garrett,** we'll learn to recognize owl calls and attempt to lure these nocturnal birds out from their nighttime lookouts. We'll set mist nets to capture a few of the dozen bat species that frequent the area and take a closer look at these winged mammals. Entomologist **Dr. Art Evans,** Director of the Insect Zoo, will entrap nocturnal insects for our inspection.

Bring a picnic dinner; we'll meet at the site. $45 members, $55 nonmembers.

■ SAILING THE ARCHIPELAGO

The Queen Charlotte Islands of British Columbia

August 9 to 16

The Queen Charlotte Islands are considered one of the richest biological and cultural areas in North America. Aboard our 68-foot sailboat, *Island Roamer,* we will explore these islands, which are difficult to reach and rarely visited but resplendent with old-growth forests of spruce, hemlock, and cedar underlain with carpets of mosses and berry bushes. Killer whales, the fast-swimming Dall's porpoises, Bald Eagles, puffins, black bears, river otters, and pine marten are among the native wild animals we may see on the cruise.

The islands are home to the culturally rich Haida Indians. With Haida guides, we will visit abandoned villages containing the remains of the great log houses and some of the best original native totem poles to be found in the world.

Lodgings are private cabins accommodating two persons each. $1,900 members, $1,945 nonmembers, airfare not included; a deposit of $250 is required. Space for this outstanding trip is limited. For further information, please call Sue Lafferty, 213/744-6912.

■ NIGHT LIGHTS

Bioluminescence

Saturday, September 7, 5 to 11 p.m.

Join us on this unique nighttime voyage off the coast of southern California. **Professor Ed Tarvyd,** Marine Biologist from Santa Monica City College, will be our guide as we focus our attention on the myriad of marine organisms that bioluminesce—glow or produce light on their own. We'll find out how marine biologists work as we rig plankton and otter trawls to capture bioluminescent creatures; then we'll turn off the ship's deck lights to watch nature's glow show. $50 members, $60 nonmembers.

■ CHANGING COLORS OF FALL IN THE SOUTHWEST

September 28 to October 12

Join us on an autumn odyssey through America's Southwest. This 15-day motor coach tour covers six spectacular national parks and a variety of national monuments and points of interest, including the perpendicular landscape of Zion; the rock spires of Bryce Canyon; the cliff dwellings of Mesa Verde; the dazzling vistas, pinnacles, and amphitheaters of Canyonlands and Arches; and the majestic beauty of the Grand Canyon. We'll hike park trails, view autumn colors from a narrow-gauge train between Silverado and Durango, Colorado, and learn about the geology, botany, wildlife, and indigenous peoples of this unique canyon country.

Our trip leaders, **Jim and Sharon Guenther,** are the dynamic owners of Wind River Field Seminars. They have led trips from the Arctic to Mexico for such organizations as the National Audubon Society, the Smithsonian Institution, and the Teton Science School, sharing their knowledge of the natural history of the great mountain ranges with fellow travelers and explorers.

$2,350 members; $2,450 nonmembers. Cosponsored with the San Diego Natural History Museum.

CHILDREN'S CLASSES & WORKSHOPS

■ ADVENTURES IN NATURE

July 15 to 19, July 22 to 26, or **July 29 to August 2,** Museum of Natural History, Exposition Park

Children from 3 to 13 years of age learn about nature firsthand in exciting participatory sessions with outstanding museum instructors. The week-long courses, which may be taken mornings or afternoons, offer

opportunities to visit the curatorial laboratories, work with natural history specimens, and make craft items to take home. While children are in class, adults may enjoy free museum programs.

Classes, which are limited to 20 students each for older students (10 each for ages 3 and 4, and 15 each for age 5), run Monday through Friday, mornings (10 a.m. to noon) or afternoons (1 to 3 p.m.). Children ages 6 and older who are enrolled in both morning and afternoon classes will be supervised over the lunch break. Classes include:

- **Ages 3 and 4**, with accompanying adult: Camp Dino, Under the Sea, Bug Tales, Bird Buddies, Critters, Critters, Everywhere.
- **Age 5:** Bug Buddies, Animal Adaptations, Fossil Finders.
- **Ages 6 and 7:** Paws and Jaws (mammalogy), Fish Friends, Beat the Heat (desert biology), Dinosaur Diggers, Flukes and Flippers (marine biology), Night Creatures.
- **Ages 8 to 10:** Call of the Wild (anthropology), The Art of Nature (scientific illustration), Crystal Gazers (mineralogy/geology), Fine Feathered Friends, Let's Go Buggy (entomology), and Reptile Wranglers (herpetology).
- **Ages 10 to 13:** Shake and Bake (environmental geology), Gold, Gods, and Graves (archaeology), Shutterbugs (photography), Mummies and Mysteries (Egyptology), Creature Comforts (animal care and careers), Camp Paleo (paleontology).

Program costs are $70 per week-long class for members, $80 per week-long class for nonmembers. Members receive additional discounts when enrolling two or more siblings.

An Adventures in Nature brochure was sent to all members at the family level and above at the beginning of April. If you need additional information or if you are interested in sponsoring a child who could not otherwise afford to attend, please call 213/744-3534.

FAMILY FUNDAYS!

These hands-on family programs are **free** with museum admission for children ages 4 and older. They are held in the Discovery Center of the Museum of Natural History in Exposition Park. No reservations are necessary, but space in some programs is limited, so please arrive early.

■ MAGNIFICENT MAORIS

Saturday, July 20, 1:30 p.m.

Explore the rich heritage of the Maori peoples of New Zealand with **Rudy Whitehead-Lopez**. We'll hear traditional tales and paint our faces with fierce tattoos.

■ BIO BOTTLE

Saturday, August 17, 1:30 p.m.

How do things rot? Why do we need worms? What is dirt made of? Learn fascinating facts about biology, and make your own bottle biosphere to take home.

FAMILY PROGRAMS

To ensure the best possible experience for your child, please abide by the age requirements stipulated in our program descriptions.

■ IN THE DARK

A Night Hike

Saturday, August 3, 7 to 10 p.m. Children ages 8 and older, accompanied by an adult

Explore the Santa Monica Mountains at night with one of our favorite naturalists, **Peter Rice.** Witness a glow show, hear stories about the night sky, and develop night vision as we search for the nocturnal creatures that call this area home. We'll also sample mountain plant seeds, roots, and flowers from Peter's snack bag.

Wear sturdy shoes for an easy 1-mile hike. Participants meet at the site in Thousand Oaks. $20 members, $25 nonmembers.

PHOTOGRAPH BY RANDY HARWOOD

■ TIDEPOOLS AT TWILIGHT

Saturday, August 31, 5:30 to 7:30 p.m. Children ages 6 and up, acompanied by an adult

Uncover the active night life in southern California tidepools on this nocturnal adventure. Using the natural light of the full moon and flashlights, we'll encounter creatures normally hidden by day and discover why these animals feed, mate, and stroll the pools at night. Trip leader **Dr. Jody Martin,** Curator of Crustaceans, will introduce us to the types of plants and animals found along our local coastline. Bring a picnic dinner. $35 adult/child pair, members, $45 adult/child pair, nonmembers, 50% fee for additional participants

■ A SLITHER, A HISS, AND A BUMP IN THE NIGHT

A Sleep-over in the Insect Zoo

Saturday August 17, 7 p.m., to Sunday, August 18, 8 a.m., Museum of Natural History, Exposition Park. Children grades 1 through 6, accompanied by an adult

Be the first to sleep with the creepy inhabitants of the museum's Ralph M. Parson's Insect Zoo. Meet live insects with **Dr. Art Evans,** Insect Zoo Director, and learn why many of these creatures are most active at night. We'll also get a behind-the-scenes tour of the new exhibit In The Dark, participate in a museum-wide scavenger hunt, and make nocturnal creature crafts to take home.

Evening snacks and a light breakfast are included. Bring your own sleeping bag and air mattress. Space is limited to 40 participants. $45 members, $55 nonmembers.

ANNOUNCEMENTS

■ MUSEUM SEEKS VOLUNTEERS

If you are fascinated by the world of history or the natural sciences, the Natural History Museum will train you to be a docent or service council volunteer. A scientific background is not necessary, only a desire to learn and become part of a great cultural institution. Please call the following numbers for further information.

William S. Hart Museum, Newhall: call Nancy McDonald at 805/254-4584.

George C. Page Museum of La Brea Discoveries: call Zandra Stanley at 213/857-6305.

Petersen Automotive Museum: call Linda Murray at 213/964-6347.

Museum of Natural History, Exposition Park: call Isabel Rosenbaum at 213/744-3341.

■ TAKE A TOUR

Add to your enjoyment of the Exposition Park museum with a guided tour. Tours of the museum are offered daily at 1 p.m. by docents; they are free with museum admission. Topics vary. All tours start at the North Entrance outside of the Ethnic Arts Shop.

PUBLIC PROGRAMS RESERVATION FORM

■ **By telephone:** Use your MasterCard or VISA. Call the Education Division at 213/744-3534, weekdays, 8 a.m. to 4 p.m. Credit cards are accepted only with a minimum charge of $20.
■ **By mail:** Complete the form below, fill in the charge information or enclose a check payable to Museum Foundation, and return your order form and payment with a self-addressed, stamped envelope. The form may be duplicated. Mail to: ***Education Division, Natural History Museum, 900 Exposition Boulevard, Los Angeles, CA 90007***
■ **Important: Reservation, Waiting List and Refund Policies.** Preregistration is required for all classes, workshops, and field trips and is recommended for all other Education Division programs. Tickets to auditorium events may be purchased at the door; seating is not reserved. Reservations are not necessary for Family Fundays.

Applicants for filled programs will be placed on a waiting list and contacted if vacancies or rescheduling occur. If you have paid for a filled program, your payment will be refunded in 4-6 weeks.

Cancellations must be made one week prior to the first day of the event for the registrant to be eligible for a refund. Only if we are able to fill your space will the fee be refunded.

Dates and times of programs are subject to change, and class sizes are limited. Please call 213/744-3534 weekdays between 8 a.m. and 4 p.m. to verify program dates, times, and availability.

Mr.
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ADDRESS CITY STATE ZIP CODE

Mail to:
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Natural History Museum
900 Exposition Blvd.
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❑ My check is enclosed

Charge my credit card:
❑ MasterCard
❑ VISA

Program	Number of participants	Price	Total Price

Total Remittance _____

Credit Card # _____ Expiration Date _____

Signature _____

Please list children's names, ages, and programs in which they are enrolling:

_____

_____

_____

_____

MUSEUM TRAVEL PROGRAM

KENYA

October 15 to 27, 1996

Join us on a photographic safari to east Africa, where you'll discover spectacular wildlife, including Grevy's zebra, the rare Rothschild giraffe, Thompson's gazelle, wildebeest, and the "big five"—elephant, lion, leopard, buffalo, and rhino. Safari highlights are the magnificent Masai Mara, Lake Nakuru with its myriad of birdlife, and Samburu National Park, where you'll stay in a luxury tented camp on the banks of the Uaso Nyiro River.

■ $4,395 including airfare

EGYPT

October 29 to November 14, 1996

Sail into the past on history's most legendary river, observing not only the timeless pattern of agricultural and village life along the Nile's banks but also many of the enduring monuments of mankind's most magnificent civilization. Your guide will be Dr. Kent Weeks, discoverer of one of the most remarkable archaeological finds in modern times—KV 5, tomb of the sons of Ramesses II. You'll also explore the classic sights of Luxor, as well as the bazaars, mosques, and churches of Cairo.

■ $5,275 including airfare from New York

GUATEMALA

November 4 to 18, 1996

Dr. Richard D. Hansen will lead this enthusiasts' trip to Guatemala, highlighted by a helicopter flight to El Mirador, considered to be the oldest and largest city in Mesoamerica. Travel by boat to Punta de Chimino to visit Seibal and Aguateca. In the Petén, explore Uaxactún and Tikal, as well as the little-known sites of Yaxhá and Toposte. You'll see Copán and, during a short stay in Guatemala City, tour the magnificent Archaeological Museum. The trip will end in the charming colonial city of Antigua.

■ $3,690 plus airfare

HIGHLIGHTS OF EGYPT

November 9 to 18, 1996

See the outstanding monuments of ancient Egypt, including the Pyramids and Sphinx at Giza, the Solar Boat Museum, and Sakkara. You'll spend four nights on the elegant Le Meridien Nile Cruise Ship, taking in the sights of Philae, Lord Kitchener's Botanical Garden, Kon Ombo, Edfu, Thebes, and the Valleys of the Kings and Queens. In Cairo, you'll explore the Khan El Khalili Bazaar and the twelfth-century Citadel. An optional extension takes you to the Sinai Desert and Petra, Jordan.

■ $3,395 including airfare

BELIZE

November 15 to 23, 1996

The Belize Barrier Reef is the longest unbroken living reef on Earth. Known worldwide for its pristine beauty and diversity of wildlife, this great natural wonder offers both the skilled diver and the novice snorkeler a unique opportunity to experience the overwhelming beauty found underwater. Among the hundreds of species of fish that may be seen are brightly colored Wrasse, Hamlet, Angel, and Parrot Fish. St. George's Caye, a small tropical island in the blue Caribbean, will be your home as you explore these wonders.

■ $2,598 including airfare

Photograph by Karen Hovanitz

FOR MORE INFORMATION
please contact Karen Hovanitz, Museum Travel Program: 213/744-3350.

MUSEUM ON THE MOVE
CONTINUED

(continued from page 7)

collectors, most of this material was excavated by museum curators in expeditions in 1926 and again in 1940, the latter as part of the Channel Islands Biological Survey of 1939–1941.

Because none of these artifacts had ever been properly logged into the collections, the first step in the process was formal accessioning; the specimens were then cataloged and placed in acid-free containers within metal cabinets. All catalog records have now been entered into the section's computerized database.

Curatorial Assistant Caprice Harper performed the work of the contract, under the supervision of Coleman.

Caprice Harper, Curatorial Assistant in the Anthropology Section, with new seagrass textile storage cabinets. Photograph by Dick Meier.

MEMBERSHIP NEWS

■ BEHIND THE SCENES AT THE NATURAL HISTORY MUSEUM

The Membership Office has recently completed its spring series of behind-the-scenes tours for Naturalist ($250) and Explorer ($500) members. Curators, collections managers, and preparators led special tours of the Exposition Park museum's laboratories and collections areas and then joined guests for private receptions. We thank Dr. Joel Martin and George Davis (crustaceans), Dr. Brian Brown (entomology), Dr. John Heyning

LIONS & TIGERS & BOOKS, OH MY!

Gerald McDermott, author and illustrator of *Zomo, the Rabbit*, reads from his book and tells stories to visitors in the Times Mirror Hall of Native American Cultures at the June 1 "summer celebration of reading" event at the Museum of Natural History in Exposition Park. During the Saturday afternoon devoted to the pleasures of books, McDermott and nine other authors and illustrators of children's literature gave presentations, some in Spanish as well as English, about their newest works in the museum galleries; visitors could also enjoy demonstrations of papermaking, calligraphy, printing, and bookbinding, a free theatre performance, and a chat with Kino from KCET's "Storytime" program. The special event was cosponsored by the Natural History Museum; PEN Center USA West, an international organization of professional writers; the County of Los Angeles Public Library; and the Los Angeles Public Library. The sponsors and several other organizations with a commitment to literacy—In-N-Out Burger, KCET, the International Printing Museum, Reading is Fundamental, and Scholastic Books—organized a reading resource fair in the museum's foyer for the afternoon. Photograph by Dan Watson.

(mammalogy), and Michael Stokes (vertebrate paleontology) for sharing their expertise with our members.

The Membership Office is planning another exciting series of tours for the fall. If you have suggestions about areas that should be included, or if you would like to upgrade your membership and receive invitations to these exclusive events, please call our office at 213/744-3426.

SUPPORT COUNCILS

Are you looking for ways to become more involved in the Natural History Museum? As a member, you are eligible to join our support councils:

■ Members of the **Friends of the Library** are devoted to enhancing and enriching the museum's collections of publications and ephemera. Social events and displays of bibliophilic interest are scheduled throughout the year. Please call 213/744-3388 for further information.

■ **Gem and Mineral Council** members, amateurs and professionals alike, enjoy an extensive year-round program of activities, including field trips, lectures, and social events. For further information, please call 213/744-3327.

■ The **Entomology Council** supports the research and educational programs based on the museum's living and preserved insect collections. Members enjoy lectures, field trips, and social gatherings and also have opportunity to participate in museum research projects. Please call 213/744-3358 or 213/744-3363 for further information.

GIFT MEMBERSHIPS

We have the perfect gift for any occasion. A membership in the Natural History Museum brings a full year's worth of fascination, imagination, and education all in one delightful package. Among the many benefits that your gift includes are unlimited free admission to the Museum of Natural History in Exposition Park, the Petersen Automotive Museum, the George C. Page Museum of La Brea Discoveries, and the William S. Hart Museum in Newhall.

If you would like more information, please call the Membership Office at 213/744-3426.

MATCHING GIFTS

Does your employer have a Matching Gift Program? Many southern California companies do, and these are a great way for you to easily double your support of the Natural History Museum. Ask your Personnel Department for information, or call the Membership Office at 213/744-3426.

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As of May 31, 1996

Natural History Museum of Los Angeles County
Exposition Park, Los Angeles, California 90007

The Natural History Museum exists to advance knowledge and to enable people of all ages, backgrounds, and interests to understand and appreciate their natural and cultural heritage. The museum assembles, conserves, interprets, and holds in trust collections of irreplaceable objects from nature and human history. These collections reveal the history of the Earth and the evolution and diversity of life and culture. They sustain programs of research, exhibits, education, and publication.

The **Museum of Natural History,** Exposition Park, is located at 900 Exposition Boulevard, Los Angeles 90007. The **George C. Page Museum of La Brea Discoveries** is located at 5801 Wilshire Boulevard, Los Angeles 90036. The **Petersen Automotive Museum** is located at 6060 Wilshire Boulevard, at Fairfax Avenue, Los Angeles 90036.

For recorded information on museum hours, admission fees for the general public, and days when no admission is charged, please call:

■ Exposition Park Museum	213/744-DINO
■ Page Museum	213/936-2230
■ Petersen Museum	213/930-CARS

Admission to these museums is always free to members.

The **William S. Hart Museum** is located at 24151 San Fernando Road, Hart Park, Newhall 91321. Admission is free. For information on museum hours, please call:

■ Hart Museum	805/254-4584

The Natural History Museum can be reached on the World Wide Web at http://www.lam.mus.ca.us/lacmnh

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of the Natural History Museum of Los Angeles County

Puzzle includes one wind-up vehicle, six interlocking pieces, and three signs, $10

Other versions are available: a wind-up car for auto enthusiasts or a wind-up boat for aspiring aquanauts

Keep your Space Cadets happy with their very own

SPACE SHUTTLE

Let young imaginations roam the Galaxy from Earth to Saturn and beyond with this unique puzzle and wind-up Space Shuttle

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Open 11am - 5pm

George C. Page Museum
of La Brea Discoveries
(213) 857-6300
Open 10am - 5pm

Petersen Automotive
Museum
(213) 964-6328
Open 10am - 6pm